

RemarksClaims 1 – 8 — 35 U.S.C. §102(e)

1. In paragraph 2 of the office action, claims 1-8 are rejected as being anticipated by Heymes, et al. under 35 USC 102(c)
2. Applicants respectfully traverse this rejection. Applicants submit that Heymes may not prior art for the present application. First, the Heymes application was filed in the United States after the constructive invention date of the present application, therefore Heymes is not prior art under §102(e)(1). Applicants submit that their invention date for the present application may pre-date the February 17, 2003 provisional filing date, and will shortly submit an affidavit on this point from the inventors.
3. Second, under §102(c)(2), a foreign filed patent is a bar to patentability only if filed as an application under §351 (PCT), designated the United States and was published under Art.21(2) in the English language. The Heymes application fails these criteria. Heymes claims priority from a French application, filed and published in France, not a PCT application. This means Heymes was filed and published in French, not English, nor could it have designated the United States.
4. In short, Heymes is not prior art to the instant application. Upon receipt of the affidavit, Applicants respectfully request that the Examiner withdraw this rejection.

Claims 1 – 8 — 35 U.S.C. §103

5. In paragraph 3 of the office action, the examiner has rejected claims 1-8 in light of Hunt, Jr. et al, US 5,221,377 (Hunt).

6. Applicant thanks the examiner for the admission that Hunt does not specify the order of the steps of the present invention. However, the examiner has misapprehended the showing of the criticality of the sequence of the invention. First, the examiner asserts that the applicant has not shown the specific criticality of removing material after rolling. This misapprehends the invention which comprises a series or ordered steps. Taking the examiner's logic to its conclusion, applicant has further not shown the specific criticality of casting the ingot before removing material. In short, an ingot must be cast before the ingot can be rolled, else there is no flat product available to remove material from.

7. More to the point, the examiner asserts without basis that Hunt discloses substantially the same process as the inventive process. The prior art process is disclosed in Hunt, and is used as a basis for comparison in the present application, i.e. the processing steps in the conventional order of inventive metal processing. This clearly establishes the non-obviousness in this case.

8. Applicant respectfully points out that the examiner has also misapprehended the criticality of the sequence of the method invention, e.g. that the plate product is machined prior to the solution heat treatment and quenching of the product. The specification provides extensive evidentiary support for the criticality of this sequence of steps of the invention, including comparative data demonstrating the unexpected improvement in the mechanical properties of plate products produced by the invention.

9. First, the specification describes how the last step of heat treatment is quenching the metal to "lock in the microstructure of the alloy achieved during solution heat treatment."

Specification, ¶3. The specification further recites the problem of quench sensitivity found in the prior art production methods, in particular that

As the thickness of the plate increases, the quench rate for the plate decreases which results in lower achievable mechanical properties. Moreover some aluminum alloys have mechanical properties that are readily lost if rapid quenching is not performed. It would be desirable to produce such alloys in thick cross sections utilizing high quench rates to take advantage of improved mechanical properties. However the product thickness has been limited by the quench sensitivity of those alloys and slower quench rates.

Specification, ¶4.

10. Second, the present invention overcomes the aforesaid inherent problem in plate products by removing material from the product prior to quenching. As stated in the specification, "By removing material so that that product achieves a near-net shape, the product is thinner and the quench rate for the product is higher than the quench rate for an ingot or a traditional flat product. Accordingly, superior properties are achievable in a product produced according to the present invention due to the opportunity for a high quench rate." Id. at ¶15.

11. The importance of the sequence of the method steps of the invention is further described as it relates to the stretching of the products. In short, by removing material to provide the product with a near net-shape, and then stretching the product into what is essentially its final shape, the residual stress of the product may be relieved, and flatness and mechanical properties improved. However, when removal of material precedes the step of stretching the product, "the stretching process is facilitated due to the smaller volume of the product being stretched." Id. at ¶16.

12. In addition, by removing material from the product prior to the artificial aging process, the process may then be performed more rapidly in both the heat up of the product and the cool down of the product providing greater control and efficiency. *Id.* at ¶17.

13. Finally, the superior properties obtained using the present invention is demonstrated within the patent application by a direct comparison of sheet samples produced using the standard method and the inventive method. Fig. 5 and Fig. 6 summarize data on the fracture toughness of two plates produced from essentially identical ingots. As shown in these charts, the plates produced by the inventive method had about 10% to 20% higher fracture toughness. See *Id.* Fig. 5, Fig. 6 and ¶25.

14. In short, the criticality of the sequence of the inventive method is well demonstrated by the specification. Given that the specification's description of the invention's merits is supported by concrete, comparative data, the criticality of the sequence of the method steps should be unquestioned.

15. Therefore, given the evidentiary support of the specification and comparative data provided by the applicant, assuming that a *prima facie* case of obviousness had been made by the general disclosures of Hunt, this case has been rebutted.

It is respectfully submitted that the present application is in condition for allowance. If the Examiner would like to suggest changes of a formal nature to place this application in better condition for allowance, a telephone call to Applicants' undersigned attorney would be appreciated.

Venema, et al.  
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Finally, the fees for this submission are to be deducted by credit card according to the enclosed form PTO-2038. Additionally, authorization is hereby given to charge any underpayments or credit any overpayments to the same.

Respectfully submitted,



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